

CLAIMS

I claim:

1. A shear wall panel for a building comprising,
 - (I) outer rectangle members comprising,
 - 5 a) a pair of spaced apart vertical members having upper ends and lower ends;
 - b) an upper horizontal member extending between and secured to the upper ends of the vertical members; and,
 - c) a lower horizontal member extending between and secured to the lower
 - 10 ends of the vertical memberswherein the outer rectangle members form an outer rectangle; and,
 - (II) inner polygon members comprising,
 - d) at least four continuous diagonal members secured together end to end to
 - 15 form an inner polygon having at least a first, a second, a third and a fourth vertex,wherein
 - (e) the inner polygon is located inside of the outer rectangle;
 - (f) the ends of the diagonal members of the first vertex are secured to one of
 - 20 the vertical members;
 - (g) the ends of the diagonal members of the second vertex are secured to the upper horizontal member;
 - (h) the ends of the diagonal members of the third vertex and are secured to the other vertical member;
 - 25 (i) the ends of the diagonal members of the fourth vertex are secured to the lower horizontal member;
 - (j) when more than four continuous diagonal members are present, any remaining ends of the continuous diagonal members are secured to a first end of an extender member wherein the extender member has a second end

secured to at least one outer rectangle members at a corner of the outer rectangle; and,

- (k) vertically oriented connectors connected to the vertical members and adapted to each be secured to a rod extending upwards from a foundation or
5 laterally stabilized wall or floor of the building below the shear wall panel near each of the vertical members wherein the vertically oriented connectors are located adjacent to the first and third vertices.

2. The shear wall panel of claim 1 wherein the ends of the diagonal members of the first, second, third and fourth vertices are secured
10 to one of the horizontal or vertical members at about the midpoint of the one of the horizontal or vertical members.

3. The shear wall panel of claim 1 wherein the vertically oriented connectors are wedge shaped blocks located above the first and third vertices.

- 15 4. A shear wall panel for a building comprising,
(I) outer rectangle members comprising,
a) a pair of spaced apart vertical members having upper ends and lower ends;
b) an upper horizontal member extending between and secured to the upper
20 ends of the vertical members; and,
c) a lower horizontal member extending between and secured to the lower ends of the vertical members

wherein the outer rectangle members form an outer rectangle; and,

- 25 (II) inner polygon members comprising,
d) at least four continuous diagonal members secured together end to end to form an inner polygon having at least a first, a second, a third and a fourth vertex,

wherein

- (e) the inner polygon is located inside of the outer rectangle;
- (f) the ends of the diagonal members of the first vertex are secured to one of the vertical members;
- (g) the ends of the diagonal members of the second vertex are secured to the upper horizontal member;
- (h) the ends of the diagonal members of the third vertex are secured to the other vertical member;
- (i) the ends of the diagonal members of the fourth vertex are secured to the lower horizontal member;
- (j) when more than four continuous diagonal members are present, any remaining ends of the continuous diagonal members are secured to a first end of an extender member wherein the extender member has a second end secured to at least one outer rectangle members at a corner of the outer rectangle; and,
- (k) rods connected to a foundation or laterally stabilized wall or floor of the building below the shear wall panel extend vertically through the shear wall panel near the vertical members and are secured to the shear wall panel near the top of the shear wall panel or to a solid structure adjacent and above the top of the shear wall panel.
5. The shear wall panel of claim 4 wherein the ends of the diagonal members of the first, second, third and fourth vertices are secured to one of the horizontal or vertical members at about the midpoint of the one of the horizontal or vertical members.
6. A shear wall panel for a building comprising,
- (I) outer rectangle members comprising,
- a) a pair of spaced apart vertical members having upper ends and lower ends;
- b) an upper horizontal member extending between and secured to the upper ends of the vertical members; and,
- c) a lower horizontal member extending between and secured to the lower

ends of the vertical members

wherein the outer rectangle members form an outer rectangle; and,

(II) inner polygon members comprising,

- 5 d) four continuous diagonal members secured together end to end to form an inner polygon having at least a first, a second, a third and a fourth vertex,

wherein

- (e) the inner polygon is located inside of the outer rectangle;
- 10 (f) the ends of the diagonal members of the first vertex are secured to one of the vertical members;
- (g) the ends of the diagonal members of the second vertex are secured to the upper horizontal member;
- (h) the ends of the diagonal members of the third vertex and are secured to
- 15 the other vertical member;
- (i) the ends of the diagonal members of the fourth vertex are secured to the lower horizontal member; and,
- (j) vertically oriented connectors connected to the vertical members and adapted to each be secured to a rod extending upwards from a foundation or
- 20 laterally stabilized wall or floor of the building below the shear wall panel near each of the vertical members wherein the vertically oriented connectors are located adjacent to the first and third vertices.

75. The shear wall panel of claim 4 wherein the ends of the diagonal members of the first, second, third and fourth vertices are secured

25 to one of the horizontal or vertical members at about the midpoint of the one of the horizontal or vertical members.

36. The shear wall panel of claim 4 wherein the vertically oriented connectors are wedge shaped blocks located above the first and third vertices.

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A shear wall panel for a building comprising,

(I) outer rectangle members comprising,

- a) a pair of spaced apart vertical members having upper ends and lower ends;
- 5 b) an upper horizontal member extending between and secured to the upper ends of the vertical members; and,
- c) a lower horizontal member extending between and secured to the lower ends of the vertical members

10 wherein the outer rectangle members form an outer rectangle; and,

(II) inner polygon members comprising,

- d) four continuous diagonal members secured together end to end to form an inner polygon having at least a first, a second, a third and a fourth vertex,

15 wherein

- (e) the inner polygon is located inside of the outer rectangle;
- (f) the ends of the diagonal members of the first vertex are secured to one of the vertical members;
- (g) the ends of the diagonal members of the second vertex are secured to the
- 20 upper horizontal member;
- (h) the ends of the diagonal members of the third vertex are secured to the other vertical member;
- (i) the ends of the diagonal members of the fourth vertex are secured to the lower horizontal member;
- 25 (j) rods connected to a foundation or laterally stabilized wall or floor of the building below the shear wall panel extend vertically through the shear wall panel near the vertical members and are secured to the shear wall panel near the top of the shear wall panel or to a solid structure adjacent and above the top of the shear wall panel.

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The shear wall panel of claim 7 wherein the ends of the diagonal members of the first, second, third and fourth vertices are secured

to one of the horizontal or vertical members at about the midpoint of the one of the horizontal or vertical members.

11. A method of making a shear wall for a building for resisting earthquake induced loads, comprising the steps of:

5 (i) providing a shear wall panel according to claim 1 adapted to resist earthquake loads;

(ii) placing the shear wall panel onto a foundation or laterally stabilized wall or floor of the building; and,

10 (iii) bolting the vertical members of the shear wall panel to the foundation or laterally stabilized wall or floor with bolts adapted to resist uplift of the vertical members created in an earthquake.

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10. A method of attaching the top of a wooden shear wall panel to a roof, floor or wall of the building above the shear wall panel comprising the steps of,

15 a) providing at least two tensile strap connectors wherein the tensile strap connectors are metal straps having a first portion and a second portion, the first portion having teeth whose width is substantially parallel to a line dividing the first portion from the second portion, the
20 second portion having holes without teeth;

(b) pounding first portions of the tensile strap connectors into the top corners of the shear wall panel such that the second portions of the tensile strap connectors extends upwards from the shear wall panel;

(c) driving fasteners through the holes of the second
25 portion of the tensile strap connectors and into the roof, floor or wall of the building above the shear wall panel.

11. The method of claim 10 further comprising,

(a) providing one or more shear strap connectors wherein the shear strap connectors are metal straps having a first portion and a

second portion, the first portion having teeth whose width is substantially perpendicular to a line dividing the first portion from the second portion, the second portion having holes without teeth;

- (b) pounding first portions of the one or more shear strap connectors into the top of the shear wall panel between the tensile strap connectors such that the second portions of the one or more tensile strap connectors extends upwards from the shear wall panel;

- (c) driving fasteners through the holes of the second portions of the one or more shear strap connectors and into the roof, floor or wall of the building above the shear wall panel.